OFFICE OF DATA ADMINISTRATION

DATA ADMINISTRATION AND DATA MODELING

OVERVIEW

Presented By: **JOHN PALERMINI**
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OUTLINE

WHO is DSDC-RA?

WHAT is Data Administration?

WHEN to do Data Administration?
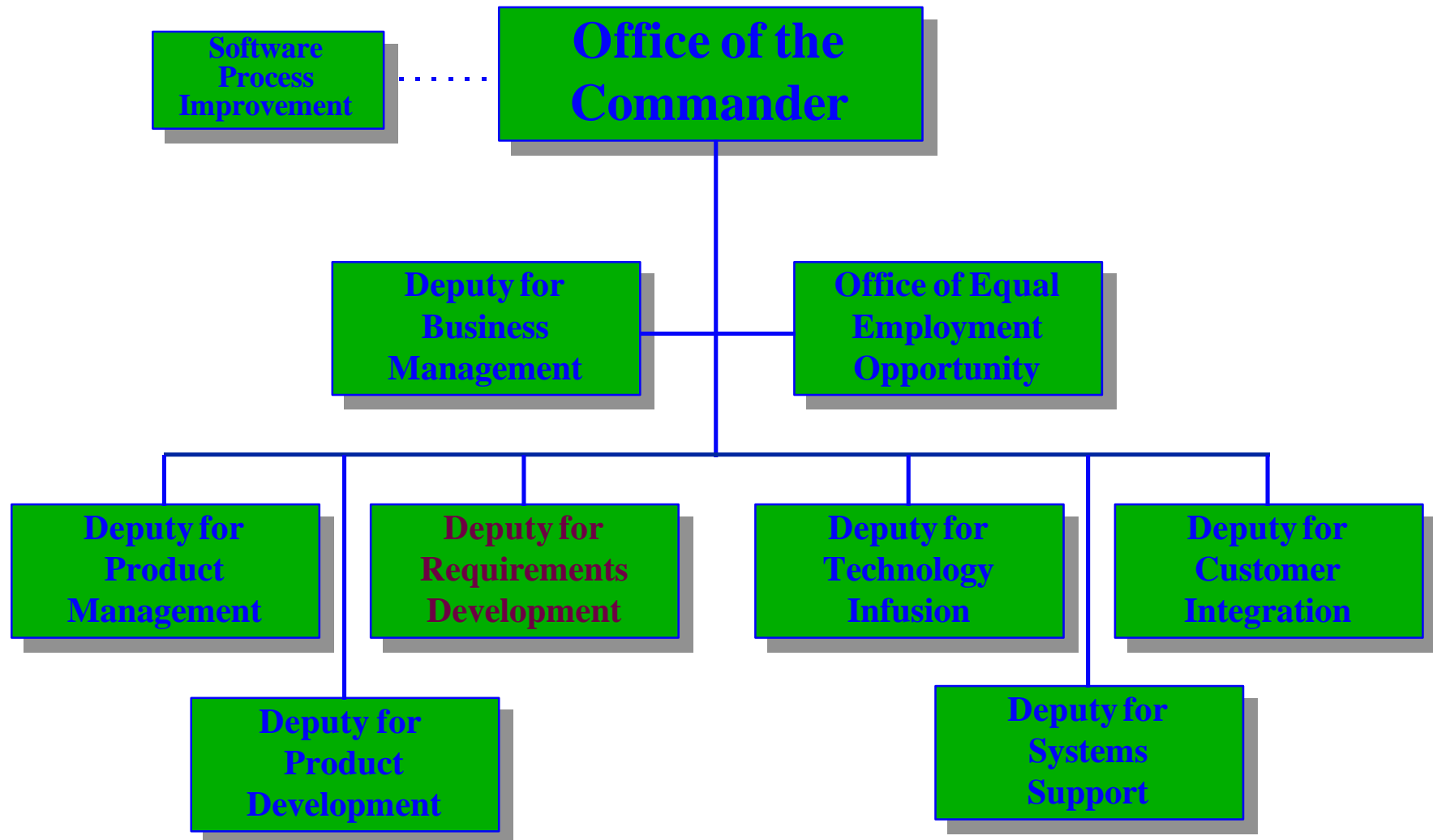
WHY do Data Administration?

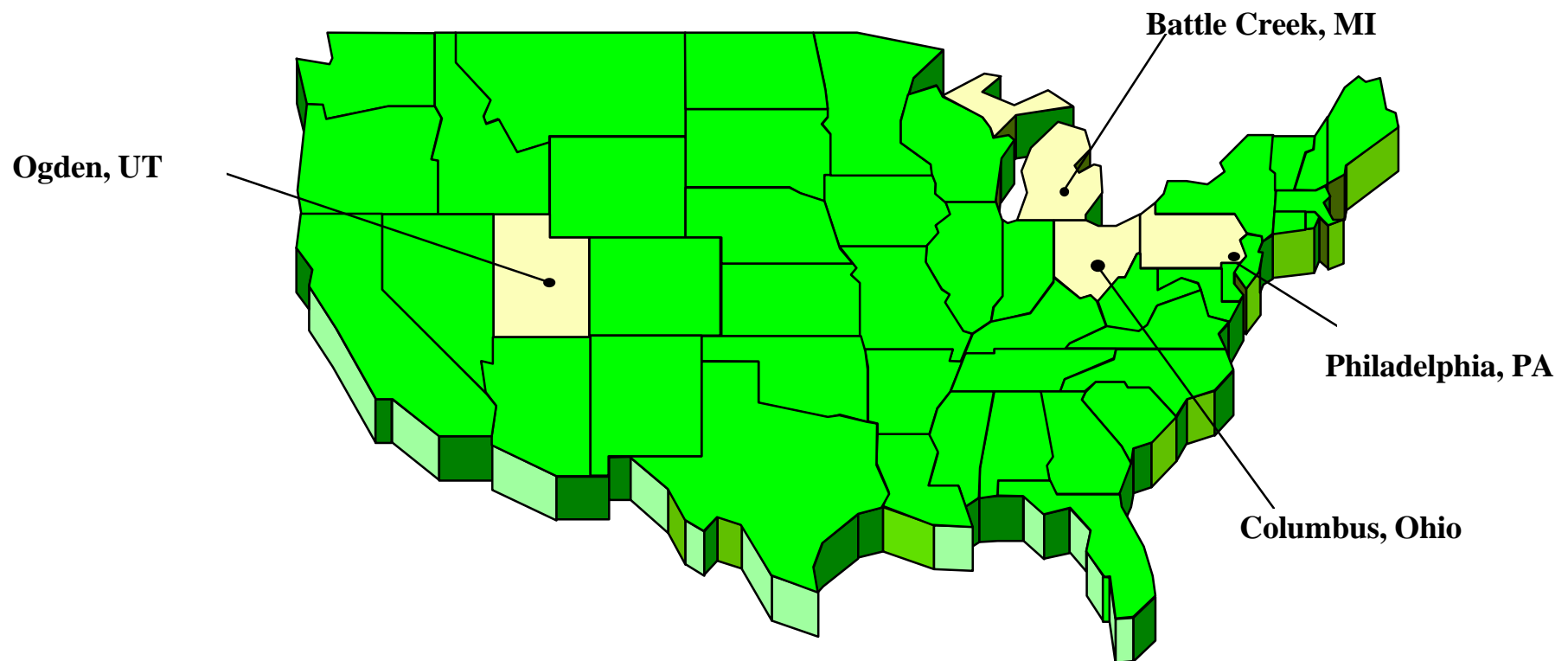**HOW we Standardize Data**

Critical Success Factors

Summary

WHO IS DSDC-RA?

Software Process Improvement

Office of the Commander

Deputy for Business Management

Office of Equal Employment Opportunity

Deputy for Product Management

Deputy for Requirements Development

Deputy for Technology Infusion

Deputy for Customer Integration

Deputy for Product Development

Deputy for Systems Support

WHERE WE ARE LOCATED

Battle Creek, MI

Ogden, UT

Philadelphia, PA

Columbus, Ohio

DSDC-RA VISION

- IDENTIFYING THE DATA MOST IMPORTANT TO THE BUSINESS.

- DOCUMENTING THE DATA.

- STANDARDIZING THE DATA.

- MANAGING THE DATA.

- USING THE STANDARD DATA IN INFORMATION SYSTEMS AND SHARED DATABASES.
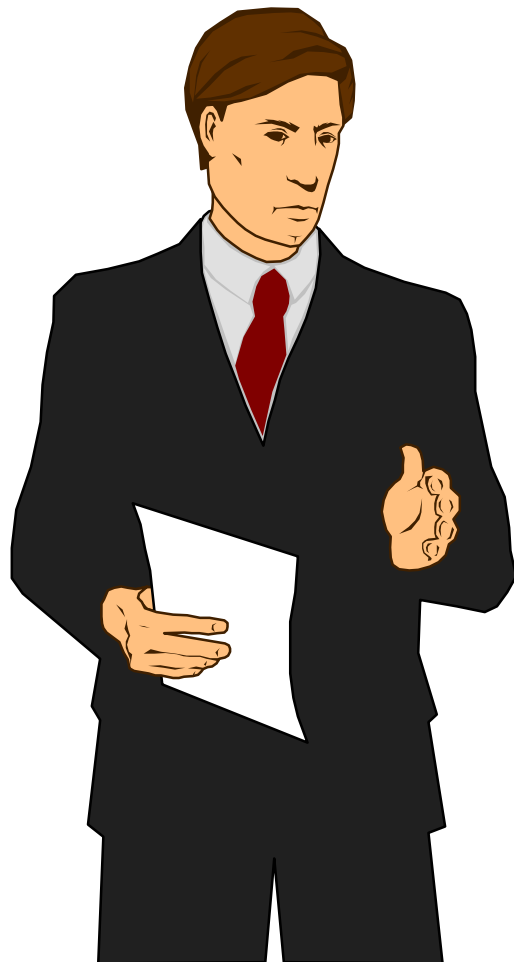
WHAT IS DATA ADMINISTRATION?

THE RESPONSIBILITY FOR DEFINITION, ORGANIZATION, SUPERVISION AND PROTECTION OF DATA WITHIN AN ENTERPRISE OR ORGANIZATION.

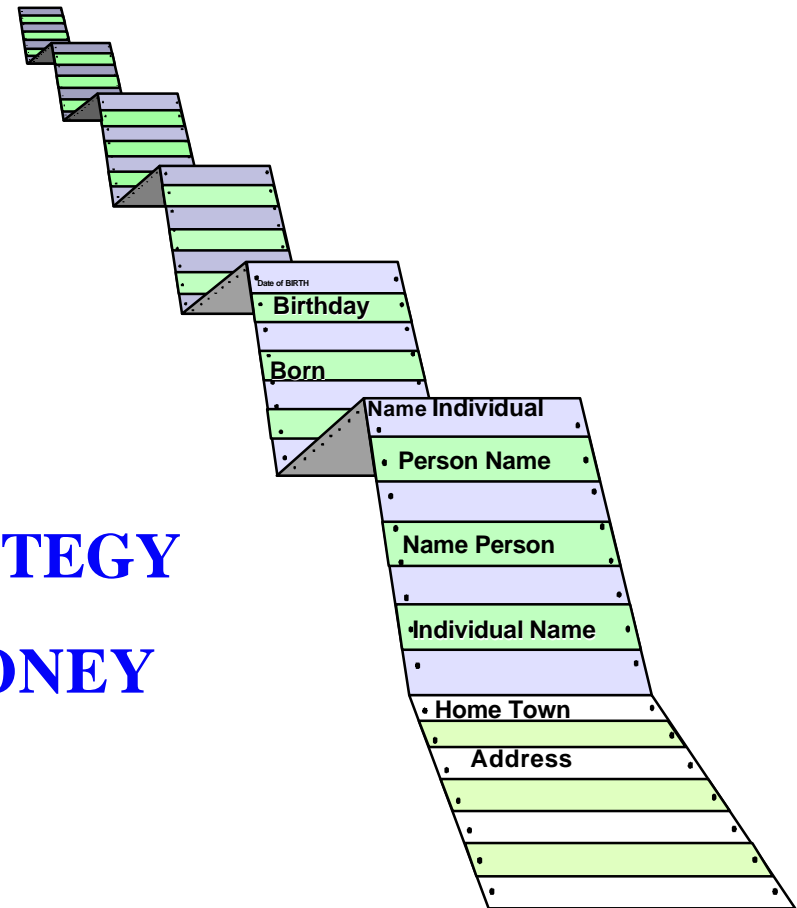- DoD Directive 8320.1

WHEN TO DO
DATA ADMINISTRATION

- ❧ REQUIREMENTS DEVELOPMENT

- ❧ ITERATIVE PROCESS

WHY DO WE DO DATA ADMINISTRATION?

- **DATA QUALITY**

- **DATA SHARING**

- **PROMOTE CORPORATE STRATEGY**

- **SAVES TIME, EFFORT AND MONEY**

Date of BIRTH
Birthday
Born
Name Individual
Person Name
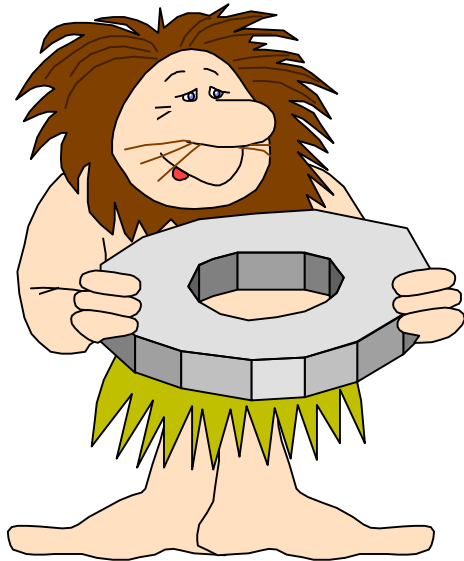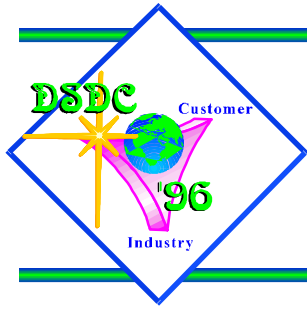Name Person
Individual Name
Home Town
Address

WHY DO WE DO DATA ADMINISTRATION?

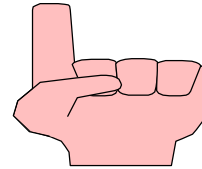Because Data Element Standardization Procedures apply to:

☞ **Migration systems**

☞ **All new initiatives to develop or migrate an automated information system.**

☞ **Modernization of an automated information system that affects 30% or more of the existing lines of code.**

☞ **Any new data element added to an existing system.**

MISSION #
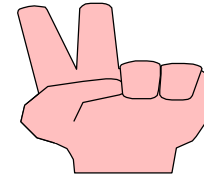
We Serve as the Liaison Between our Customers and the Organizations Which Determine Design and Documentation Standards.
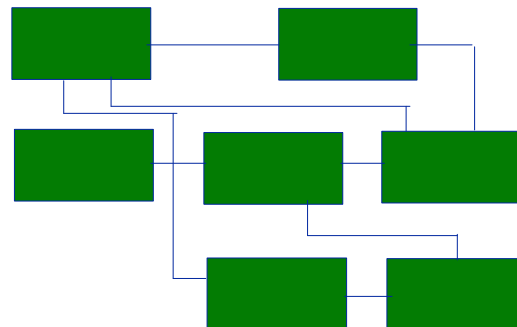
MISSION #

We Coordinate the Design and Development of Data Models, Assist in the Integration of Data Models, and Ensure Compliance with Data Modeling Standards
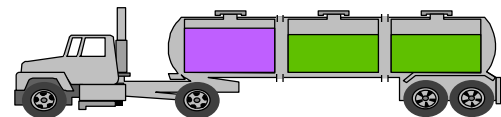
MODELS AND MODELING

★ **A model is an abstract representation of something that exists, or that is planned to be created in the universe**

★ **Modeling is the plan or process required to accomplish a cohesive set of activities to build a model**

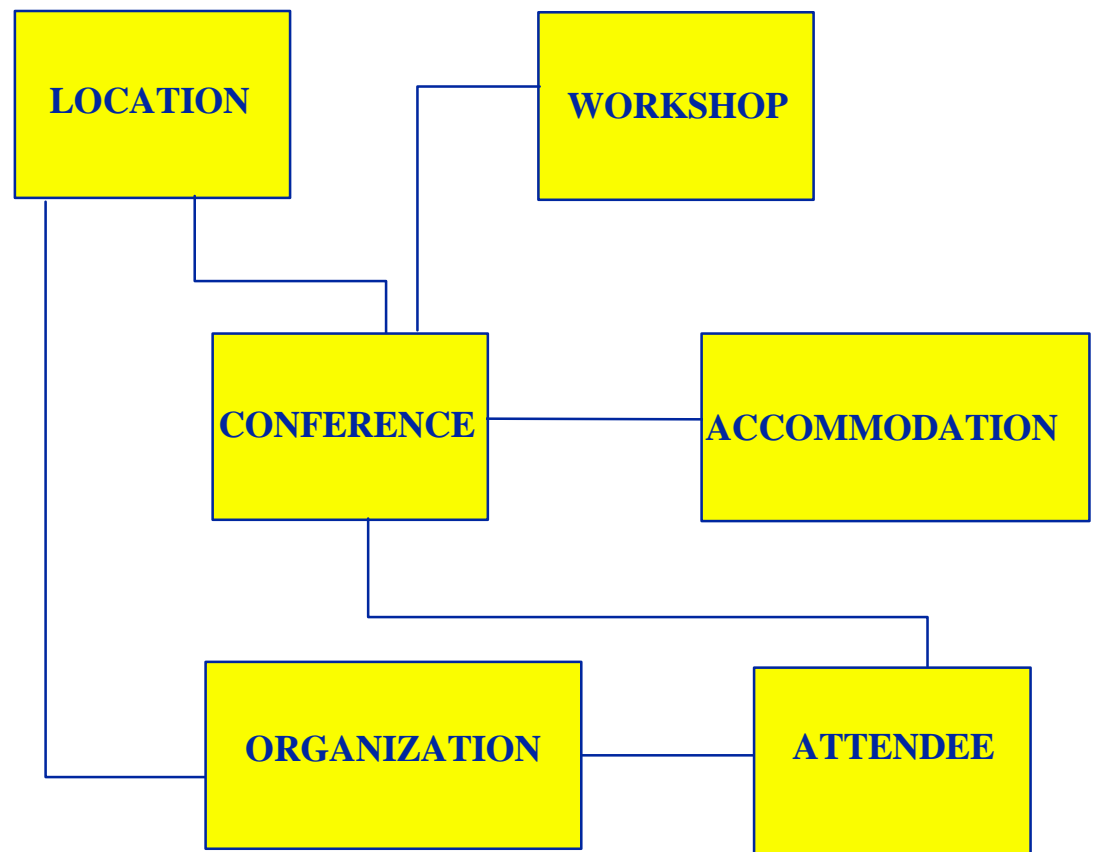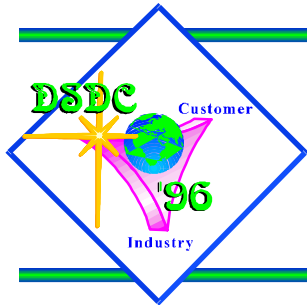| Model	Real World
VEHICLE	
BUILDING	

DATA MODELS

➢ **Corporate Information "Blueprint"**

➢ **Represents the data requirement independent of technology**

➢ **Abstract representation of what the enterprise knows; static component of the business model**

➢ **Depicts facts, and the relationships between those facts, of interest to the business**

➢ **Is NOT (necessarily) a computer database design**

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LOCATION          WORKSHOP

        CONFERENCE          ACCOMMODATION

ORGANIZATION          ATTENDEE
```

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DEFINITION OF AN ENTITY

An **ENTITY** represents some "thing" which is of importance to the business. It is established to house a set of characteristics that are common to each occurrence of that "thing".

Conventions: Rectangular box

Label in capital letters to distinguish it from attributes

Examples:

CONFERENCE	ATTENDEE

DEFINITION OF AN ATTRIBUTE

An **ATTRIBUTE** is a "piece" of information which describes **an entity.**

Conventions: Written in lower case.
                    Listed for each entity.

Examples:

CONFERENCE

contains: conference name
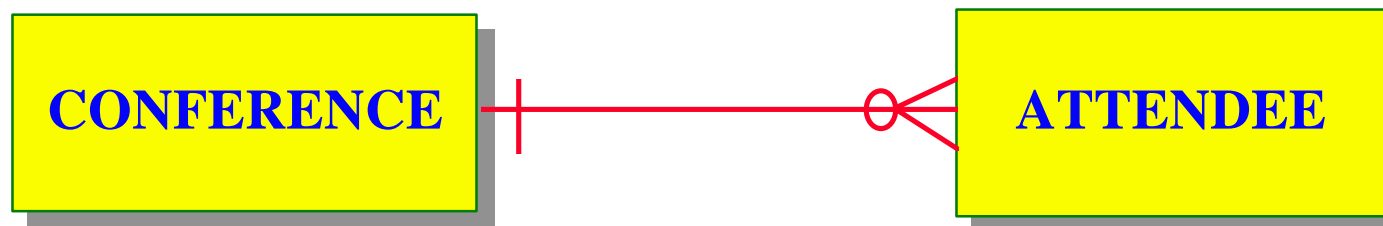   conference date

ATTENDEE

contains: attendee name

An **ASSOCIATION** is a logical connection between two entities. It describes the relationship indicated by the attributes of the two entities.

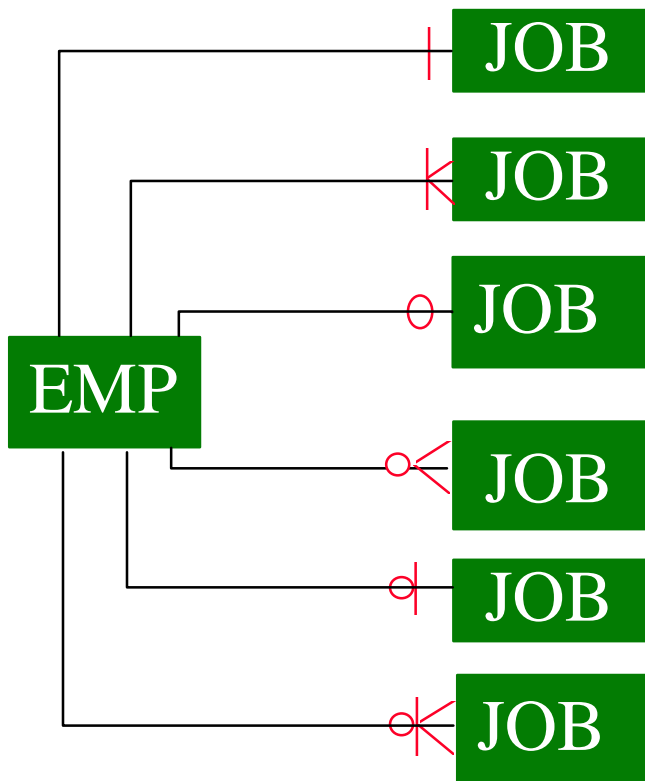An association is shown graphically by a line connecting entities.

Example:

CARDINALITY OF ASSOCIATIONS

Symbol

Meaning

EMP

JOB — **must have one**

JOB — **must have at least one, could have many**

JOB — **may have zero or one**

JOB — **may have zero, one or many**

JOB — **will eventually have one**

JOB — **will eventually have at least one**
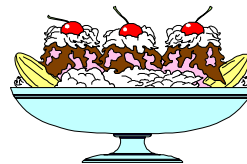
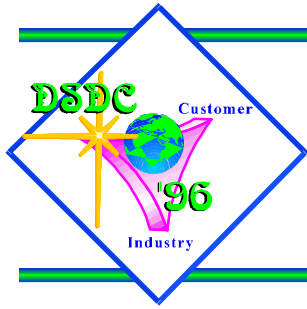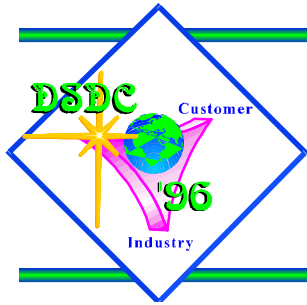ICE CREAM CONE

ICE CREAM SUNDAE

CUSTOMER

MILK SHAKE

EMPLOYEE

_____

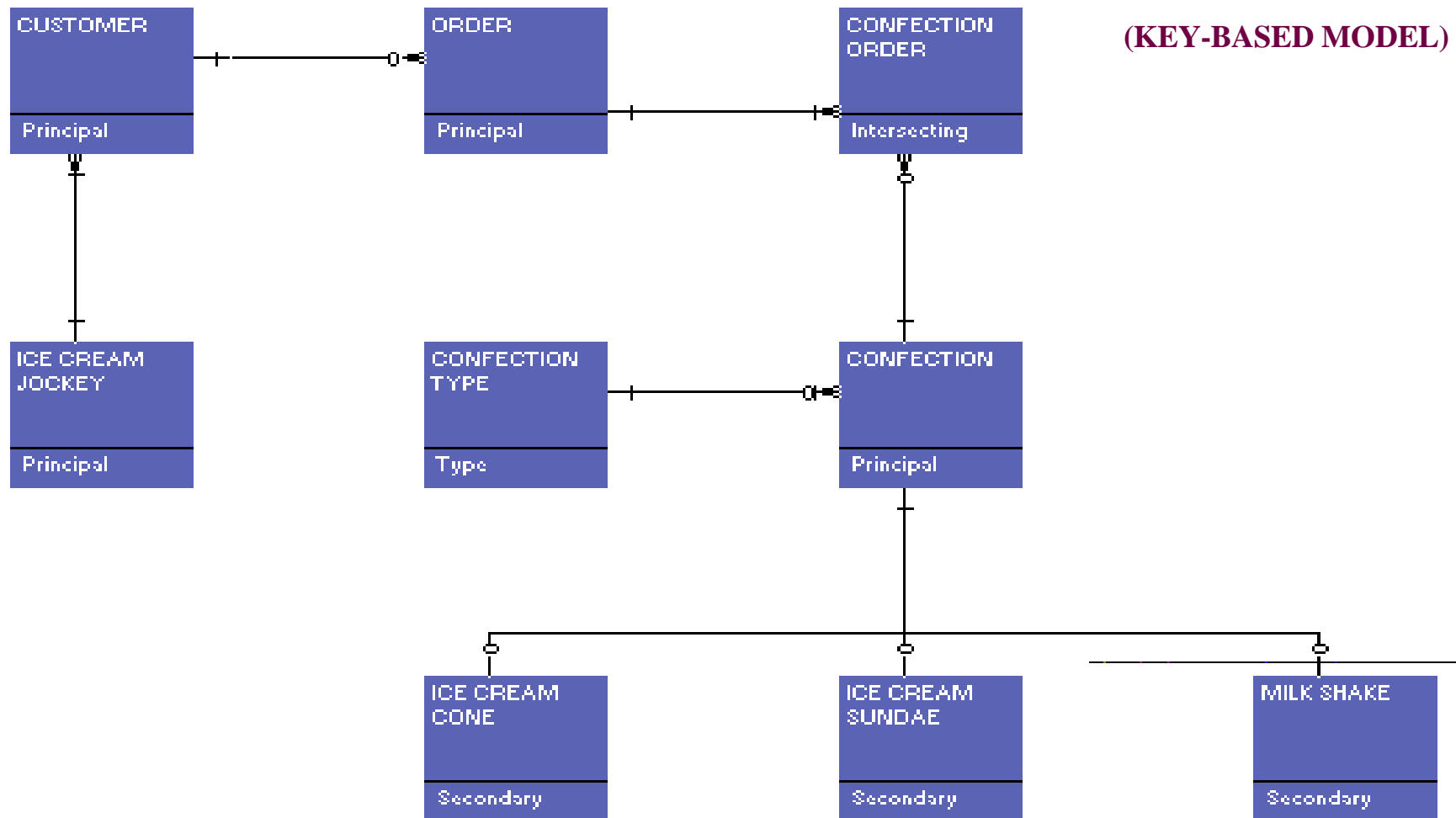# ICE CREAM SHOP POLICY

– To be an employee in The Ice Cream Shop every Ice Cream Jockey must serve at least one Customer and maybe more.

– Each Customer is served by only one Ice Cream Jockey.

– A Customer doesn't have to place an order to be treated like a Customer.

– Each order belongs to only one Customer.

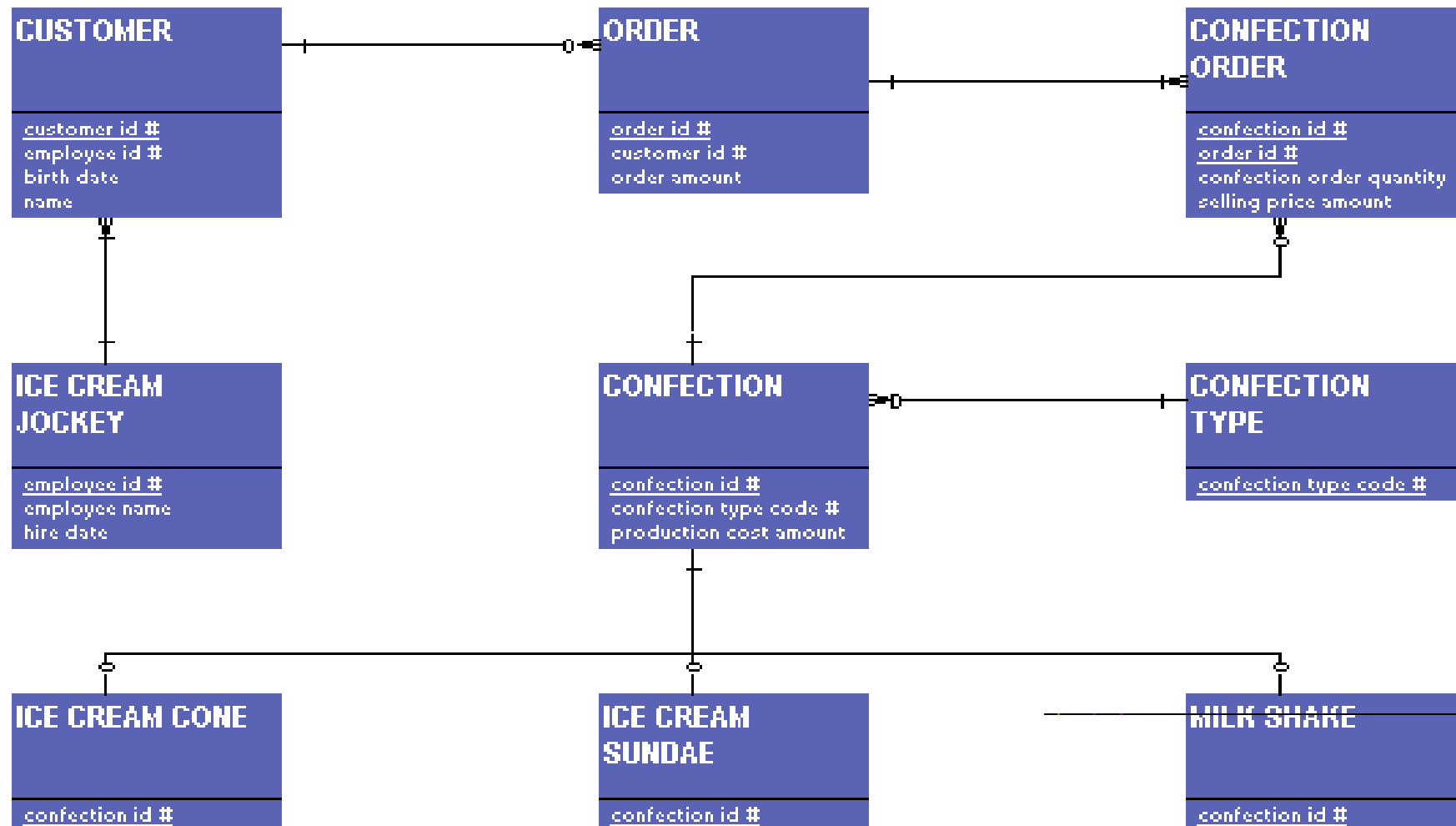# THE ICE CREAM SHOP DATA MODEL

(KEY-BASED MODEL)

THE ICE CREAM SHOP DATA MODEL

(FULLY ATTRIBUTED MODEL)

CUSTOMER
- customer id #
- employee id #
- birth date
- name

ORDER
- order id #
- customer id #
- order amount

CONFECTION ORDER
- confection id #
- order id #
- confection order quantity
- selling price amount

ICE CREAM JOCKEY
- employee id #
- employee name
- hire date

CONFECTION
- confection id #
- confection type code #
- production cost amount

CONFECTION TYPE
- confection type code #

ICE CREAM CONE
- confection id #

ICE CREAM SUNDAE
- confection id #

MILK SHAKE
- confection id #

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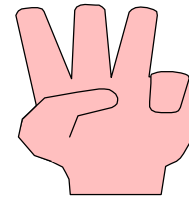
OFFICE OF DATA ADMINISTRATION MISSION

MISSION

We Represent Our Customers in Preliminary Design Reviews and Critical Design Reviews.

These reviews assure the proper use of data, the security requirements of data and the privacy requirements of data are used in the system design.

MISSION

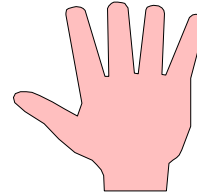**Ensure That Data Is Standardized In Accordance With Industry Standards**

DATA ADMINISTRATION GUIDANCE:

- **DoD Directive 8320.1, Data Administration**

- **DoD Manual 8320.1-M-1, DoD Data Element Standardization Procedures**

- **DoD Manual 8320.1-M-3 DoD Data Quality Management Guidelines**

- **Federal Information Processing Standards Publication 184, Integration Definition For Information Modeling (IDEF1X)**
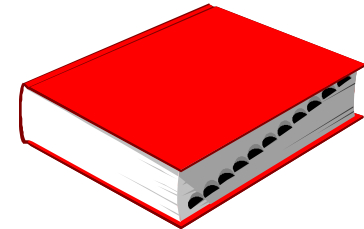
OFFICE OF DATA ADMINISTRATION MISSION

MISSION

We populate and maintain a dictionary of metadata about data elements.

EXAMPLE: Conference Attendee Registration Date
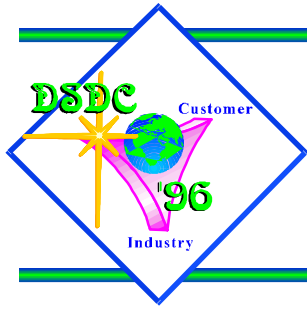
Has The Following Metadata: FORMAT: 23-May-1996

DATA TYPE NAME: Date

SECURITY CATEGORY: U

DEFINITION: The date on which an
                     attendee of the DSDC
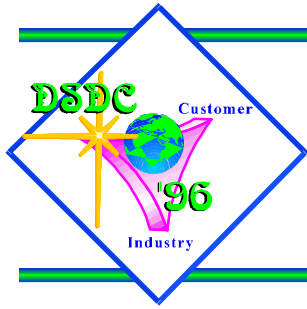   Conference is registered   **25**

HOW WE STANDARDIZE DATA

EXAMPLE: The date on which an attendee to the DSDC Conference is registered.

Our Example Will Have the Following:

✎ **PRIME WORD MODIFIER**

✎ **PRIME WORD**

✎ **CLASS WORD MODIFIER**

✎ **CLASS WORD**

CLASS WORDS

DEFINITION: A word in the name of a data element describing the category to which the data element belongs.
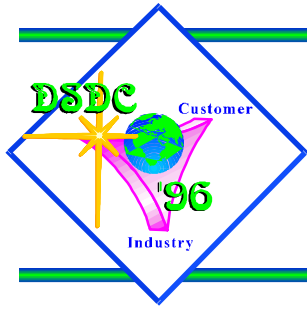
EXAMPLES:

amount	code
date	name
quantity	weight

OUR EXAMPLE: date

DEFINITION: A word included in the name of a data entity that represents the logical data grouping to which it belongs.
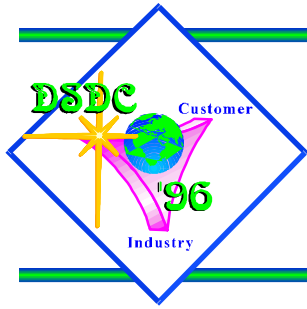
EXAMPLES: CONTRACT   EMPLOYEE

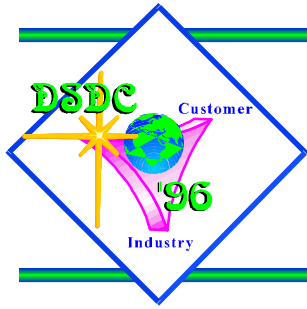ATTENDEE   REQUISITION

OUR EXAMPLE: ATTENDEE

DEFINITION: An adjective that may occur in a data element name which further refines and categorizes the prime or the class word.

EXAMPLE:

conference	registration
effective	type
birth	middle

OUR EXAMPLES: conference **and** registration

PRIME WORD MODIFIER

conference

PRIME WORD

attendee

CLASS WORD MODIFIER

registration

CLASS WORD

date

conference attendee registration date

STANDARD DATA ELEMENT APPROVAL PROCESS

✄ **DSDC DA submits developmental standard data elements to the DLA CDAd.**

✄ **The DLA CDAd proposes the developmental standard data element to the DDDS as a candidate standard data element.**

✄ **DoD DAd has 30 days to approve or disapprove the candidate standard data element. Part of the review process for approval includes a review by the FDAd.**

CRITICAL SUCCESS FACTORS

✳ **LEADERSHIP**
- ✦ **Management Commitment**
- ✦ **Culture Change**
- ✦ **Organization Change**

✳ **OWNERSHIP**
- ✦ **Sponsorship**
- ✦ **Quality**

✳ **PARTNERSHIP**
- ✦ **Joint Venture-Business and IS**

✳ **SCHOLARSHIP**
- ✦ **Training**

✳ **CRAFTSMANSHIP**
- ✦ **Methodology and Tool Support**

SUMMARY

- **Depict the overall DoD mission needs**

- **Support operation capabilities for collection, storage, and exchange of data**

- **Create a base of shared information**

- **Facilitate functional and technical integration and interoperability.**

DATA ADMINISTRATION AND DATA MODELING

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